

**WHAT IS CLAIMED IS:**

1. An etching apparatus comprising:

an etching bath;

5 an etchant recycling part in the etching bath;

a DI and undiluted etchant supply part for supplying a DI water and an undiluted  
etchant;

an etchant mixing part for mixing the DI water and the undiluted etchant for  
producing a mixed etchant; and

10 an etchant heating part for heating the mixed etchant.

2. The apparatus of claim 1, wherein the etchant heating part heats the mixed etchant  
to a temperature higher than room temperature.

3. The apparatus of claim 1, wherein the etching bath comprises:

a container for holding etchant;

15 a bubble plate at a lower portion of the container, the bubble plate for generating  
bubbles using a supplied gas;

a gas supply tube connected to the bubble plate for supplying a gas; and

a temperature measuring unit within the container.

4. The apparatus of claim 3, wherein the gas includes at least one of nitrogen (N<sub>2</sub>)  
20 and oxygen (O<sub>2</sub>).

5. The apparatus of claim 1, wherein the etchant recycling part comprises:

a storage tank storing the etchant; and

at least one filter filtering the etchant into the storage tank.

6. The apparatus of claim 1, further comprising a cooling water tube in the etchant mixing part.

5 7. The apparatus of claim 1, further comprising a concentration measuring unit in the etchant mixing part.

8. The apparatus of claim 1, further comprising a tube connected to the etching bath, the etchant recycling part, the etchant mixing part and the etchant heating part.

9. The apparatus of claim 8, wherein the tube includes at least one pump.

10. The apparatus of claim 1, wherein the etchant includes HF.

11. The apparatus of claim 1, further comprising:  
a cleaning bath for cleaning the etched substrate; and  
a drying bath for drying the etched substrate.

12. An apparatus for etching a material, comprising:  
15 an etching bath containing an etchant;  
a temperature measuring unit for measuring the temperature of the etchant in the etch bath; and  
an etchant heating element for heating the etchant.

13. The apparatus for etching a material of claim 12, further comprising:  
20 an undiluted etchant supply part for supplying undiluted etchant;

a water supply part for supplying water; and  
a mixing part for mixing the undiluted etchant and the water.

14. The apparatus for etching material of claim 13, wherein the etchant heating element is in the mixing part.

5 15. The apparatus for etching material of claim 13, further comprising an etchant concentration measuring unit in the mixing part.

16. The apparatus for etching material of claim 13, further comprising:  
an etchant recycling unit for receiving etchant from the etching bath and providing etchant to the mixing part.

10 17. The apparatus for etching material of claim 16, wherein the etchant recycling unit includes a filter and a storage tank.

18. The apparatus for etching a material of claim 12, wherein the etching bath includes a bubble plate.

15 19. The apparatus for etching a material of claim 12, wherein the etchant includes HF.

20. A method of etching a material, comprising:  
providing an etchant in an etching bath;  
providing a material to be etched in the etching bath to etch the material;  
monitoring temperature of the etchant in the etching bath after the material is

20 provided in the etching bath; and

stopping etching of the material in the etching bath when the temperature of the etchant is a predetermined value.

21. The method of claim 20, further comprising:

maintaining a constant concentration of the etchant in the etching bath.

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22. The method of claim 20, wherein the material to be etched is glass.

23. The method of claim 20, wherein the etchant is HF.

24. The method of claim 20, further comprising:

heating the etchant in the etching bath.

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